# UNITED STATES PATENT AND TRADEMARK OFFICE

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 09/800,064 | 03/06/2001 | Andrea Jessee | M61.12-0328 | 4125 |

| 27366 | 7590 | 06/02/2005 |
|---|---|---|

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| EXAMINER |
|---|
| HAN, QI |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2654 | |

DATE MAILED: 06/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

| | Application No. | Applicant(s) |
|---|---|---|
| **Office Action Summary** | 09/800,064 | JESSEE ET AL. |
| | Examiner | Art Unit | |
| | Qi Han | 2654 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on _13 December 2004_.

2a)☒ This action is **FINAL**.        2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) _1-18_ is/are pending in the application.

  4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-18_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

  a)☐ All  b)☐ Some * c)☐ None of:

  1.☐ Certified copies of the priority documents have been received.

  2.☐ Certified copies of the priority documents have been received in Application No. _____.

  3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
  application from the International Bureau (PCT Rule 17.2(a)).

  * See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
  Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
  Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____.

## DETAILED ACTION

1.      The text of those sections of Title 35, U.S. Code not included in this action can be found

in a prior Office action.

### *Response to Amendment*

2.      This communication is responsive to the applicant's amendment dated 12/13/2004.

Applicant amended claims 1-2, 5-6 and 10-11.

### *Response to Arguments*

3.      Applicant's arguments filed on 12/13/2004 with respect to rejection of claims 1-18 under

35 USC 103, have been fully considered but are moot in view of the new ground(s) of rejection,

since the arguments are based on the amended independent claims that introduce new

matter(s)/issue(s) (see detail in the claim rejection below).

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making
> and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it
> pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode
> contemplated by the inventor of carrying out his invention.

4.      Claims 1-2 and 10-11 are rejected under 35 U.S.C. 112, first paragraph, as failing to

comply with the written description requirement. The claim(s) contains subject matter which

was not described in the specification in such a way as to reasonably convey to one skilled in the

relevant art that the inventor(s), at the time the application was filed, had possession of the

claimed invention.

Regarding claims 1 and 10, the amended limitations "<u>and **tables for verbs including**</u>

<u>**expected cases of complements of verbs**</u>" and "the correct case combination <u>as a function of the</u>

<u>case endings and expected cases</u>" introduce new subject matters, since they are not specifically

disclosed in the specification.

Regarding claims 2 and 11, the amended limitation "displaying ...**in an order from the**

**most likely·<u>changes of case ending</u> to the least likely <u>change of case endings</u>** to be accepted

by a user" introduces new subject matters, since it lacks specific disclosure in the specification.

### *Claim Rejections - 35 USC § 103*

5.     Claims 1, 4-10 and 13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Zamora et al. (US 4887212), hereinafter referenced as Zamora, in view of Kucera et al. (US

4864502), hereinafter referenced as Kucera, and further in view of Anick et al. (US 5559693),

hereinafter referenced as Anick or Yoshida (US 4,595,686).

As per **claim 10**, as best understand in view of the rejection under 35 USC 1$^{st}$ (see above)

Zamora discloses parser for natural language text (title), comprising:

"a lexicon and a morphology table stored on a computer readable medium" and "tables

for verbs including expected cases of complements of the verbs" (column 2, lines 52-67,

'morphological analysis', 'dictionary (lexicon) look-up'; column 27, lines 15-16, 'parsing natural

language text in a computer having memory'; column 6, line 23 and Tables III-IV, 'verb

complement analysis');

"a sentence analysis engine receiving the sentence and generating a parsed noun phrase combination and a verb phrase, the sentence analysis engine accessing the morphology table and providing an initial case combination associated with the noun phrase combination", (column 2, lines 149-60, 'natural language text parser (sentence analysis engine)', 'sequential steps of word isolation, morphological analysis, 'dictionary (lexicon) look-up combined with a complement grammar analysis, are applied to an input data stream of words (necessarily includes sentence)', 'word expert rules, verb group analysis ...are then applied to provide output data structure where the words in the input data stream are associated with their respective parts of speech and are grouped with appropriate phrase markings'; column 6, lines 20-26, 'verb groups', 'noun phrase');

"an error detecting function accessing the lexicon and generating a correct case combination associated with the verb phrase [as a function of the case endings and the expected cases]; the error detecting function comparing the case combination to the correct case combination and generating a case error combination", (column 6, lines 35-43, 'identification of word components which make possible to match (compare) against a dictionary (lexicon); column 6, lines 35-43, 'a grammar violation analysis (error detecting function)', 'the error noted are marked by indicating ... error has occurred'; column 5, lines 46-65, 'morphological analysis-1 identifies ...suffixes (case endings) separated by hyphens following the verb' and 'to **match** against the endings of words (corresponding to a function of the case ending and the expected case as claimed)');

But, Zamora does not expressly disclose the noun phrase combination (see above) being "initial noun phrase" and "a target case calculation function generating a combination of

sentence rewrites that includes a change of case endings in one noun phrase that corrects the case

error combination". However, this feature is well known in the art as evidenced by Kucera who

discloses sentence analyzer (title), comprising initial noun phrase processing of the parsing

module and that when agreement errors are detected, the correct noun and verb inflections

(necessarily including change case endings in a noun phrase on it and/or sentence rewrites) are

generated from the base form, by an inflection procedure (corresponding to target case

calculation function), and displayed with a corresponding error message as suggested corrections

(column 4, lines 57-65). Therefore, it would have been obvious to one of ordinary skill in the art

at the time the invention was made to modify Zamora by specifically providing initial noun

phrase processing and a mechanism for detecting and correcting inflectional errors, as taught by

Kucera, for the purpose of improving grammatical analysis of natural language text (Kucera:

column 1, line 44).

Further, Zamora in view of Kucera does not expressly disclose the grammar checking for

"a German language sentence" and "the morphology table including case endings for nouns,

adjectives and determiners that are not unique to a particular case". However, the feature of

using morphology table (tables or equivalent means) including case endings for nouns, adjectives

and determiners for German sentence is well known in the art as evidenced by Anick who

discloses method and apparatus for efficient morphological text analysis using a high-level

language for compact specification of inflectional paradigms (title), performing function of

morphological text analysis (column 6, lines 6-9), 'rules for constructing word inflections'

including 'noun declension' (column 2, lines 22-30) and 'morphological rule specification' 'for

German' language (column 9, line 40 to column 10, line 5 and APPEDIX III), which necessarily

includes handling various case endings in the leagues; or by Yoshida who discloses language interpreter for inflecting words for their uninflected form (title), comprising the inflection and word ending information (including noun, article and adjective) in German (see Tables 1-5). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Zamora in view of Kucera by specifically providing a morphological rule specification including noun declension in German, as taught by Anick, for the purpose of supporting multiple natural languages (Anick: column 6, lines 6-9); or, providing the inflection and word ending information (including noun, article and adjective) in German, as taught by Yoshida, for the purpose of obtaining the properly inflected word (Yoshida: abstract).

As per **claim 13** (depending on claim 10), Zamora in view of Kucera and Anick or Yoshida further discloses "a subject and any direct object and any indirect object associated with the verb phrase", (Zamora: column 5, lines 17-23, 'subject verb agreement'; Kucera: column 34, lines 27-28, 'subject-verb-object concordance rules', and column 24, lines 36, 'he gave the girl a book' (including indirect object)).

As per **claim 14** (depending on claim 10), as stated above, Zamora in view of Kucera and Anick or Yoshida discloses "the case error combination is generated without access to the meaning of the sentence", (Kucera: column 4, lines 57-65, 'when agreement errors are detected, the correct noun and verb inflections (which inherently means no access to the meaning of sentence, and necessarily include change of case ending) are generated from the base form, by an inflection procedure').

As per **claim 15** (depending on claim 10), Zamora in view of Kucera and Anick or Yoshida further discloses "corrections to the case endings of determiners, adjectives and nouns

in the noun phrase", (Kucera: column 5, lines 1-9, 'determiners', 'post-determiners' 'adjectives',

'noun phrase determination'; and Figs 5-6);

As per **claim 16** (depending on claim 10), Zamora in view of Kucera and Anick or

Yoshida further discloses "a fake subject inserted in the initial noun phrase combination to

facilitate the comparing", (Kucera: column 24, lines 3-6, 'a leading verb (imperative) with an

implied subject', which is necessarily treated as if there is a fake subject).

As per **claim 17** (depending on claim 10), Zamora in view of Kucera and Anick or

Yoshida further discloses "a filter removing any sentence with a suspiciously complex

combination before the comparing", (Zamora: column 5, line 67 to column 6, line 24, 'the

rewrite rules (corresponding to functionality of filter )... to rule out (remove) those part of

speech which are impossible in the particular sentence structure give in the input').

As per **claim 18** (depending on claim 10), Zamora in view of Kucera and Anick or

Yoshida further discloses "a detector of noun phrase (NP) disagreement in the sentence",

(Zamora: column 5, lines 24, 'error noted are marked by indicating where subject verb

disagreement, split infinitive, a wrong pronoun case'), but Zamora in view of Kucera and Anick

or Yoshida does not expressly teach a filtering out the sentence before the comparing when there

is noun phrase disagreement.  However, a similar feature for ruling out bad parts of speech is

well known in the art as evidenced by Zamora himself (see column 5, line 67 to column 6, line

24).  Therefore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify Zamora in view of Kucera by simply filtering out the parts of

disagreement sentence, for the purpose of speeding up further processing (Anick: column 6, lines

6-9).

As per **claim 1**, it recites a method. The rejection is based on the same reason as described for claim 10, because the claim recites same or similar limitation(s) as claim 10.

As per **claims 4-9** (depending on claim 1), the rejection is based on the same reason as described for claims 13-18 respectively, because the claims recite the same or similar limitation(s) as claims 13-18 respectively.

6.      Claims 2-3 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zamora in view of Kucera and Anick or Yoshida as applied to claims 1 and 10 above, and further in view of Ecker et al. (US 6,442,524 B1) hereinafter references as Ecker.

As per **claim 11** (depending on claim 10), Zamora in view of Kucera and Anick or Yoshida does not expressly disclose "a display of the sentence rewrites in an order from the most likely [change of case endings] to the least likely [change of case endings] to be accepted by a user". However, the feature of displaying alternative candidates in an order of highest likelihood first is well known in the art as evidenced by Ecker who analyzing inflectional morphology in a spoken language translation system (title), comprising displaying 'hypotheses alternatives' of a language sentence in 'an ordered list with the most likely hypothesis listed first and the least likely hypothesis listed last' (column 17, lines 40-50 and Fig. 14). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Zamora in view of Kucera and Anick or Yoshida by specifically providing displaying hypothesis alternatives in an order of highest likelihood first, as taught by Ecker, for the purpose of allowing user to select a preferred hypothesis (Ecker: column 17, lines 51-55).

As per **claim 2** (depending on claim 1), the rejection is based on the same reason as described for claim 11, because the claim recites the same or similar limitation(s) as claim 11.

As per **claim 12** (depending on claim 10), Zamora in view of Kucera and Anick or Yoshida does not expressly disclose "a display of sentence rewrites limited to no more than three rewrites per noun phrase". However, as stated in claim 11 (see above), since Ecker teaches displaying 'hypotheses **alternatives**' of a language sentence in 'an **ordered list** with the most likely hypothesis listed first and the least likely hypothesis listed last' (column 17, lines 40-50 and Fig. 14), it obviously suggests displaying more than one alternatives. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Zamora in view of Kucera and Anick or Yoshida by providing displaying one or more hypothesis alternatives, including three alternatives, in an order of highest likelihood first, as suggested by Ecker, for the purpose of allowing user to select a preferred hypothesis (Ecker: column 17, lines 51-55).

As per **claim 3** (depending on claim 1), the rejection is based on the same reason as described for claim 12, because the claim recites the same or similar limitation(s) as claim 12.

## *Conclusion*

7.      Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this

final action.

8.      Please address mail to be delivered by the United States Postal Service (USPS) as
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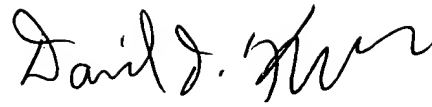        U.S. Patent and Trademark Office
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        Any inquiry concerning this communication or earlier communications from the
examiner should be directed to Qi Han whose telephone numbers is (571) 272-7604. The
examiner can normally be reached on Monday through Thursday from 9:00 a.m. to 7:00 p.m.  If
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Richemond Dorvil, can be reached on (571) 272-7602.

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QH/qh
May 23, 2005

DAVID D. KNEPPER
PRIMARY EXAMINER